# Postgraduate Top-Up Scholarships

Role summary for potential applicants

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| Advertised Job Title**:** | CSIRO Postgraduate Scholarships - **Mineral Resources** |
| Reference Number**:** | 47422 |
| Scholarship: | AU$7,000 per year as a top up scholarship, plus an operating budget of up to $10,000 |
| Location**:** | Various locations across Australia |
| Length of Engagement: | (Up to) 3 year term (concordant with existing RTP or scholarship) |
| Applications are open to: | Australian Citizens Only  Australian Citizens and Permanent Residents Only   * All Candidates |
| Research Areas**:** | Various – please see the list at the end of this document |
| How to Apply: | *Before you apply please read the information in this document about these scholarships and the research projects on offer. There is additional information on our* [*Postgraduate scholarships*](http://www.csiro.au/en/Careers/Student-and-graduate-programs/Postgraduate-scholarships) *page at CSIRO Careers.*  To apply, please prepare **ONE** document which includes all of the following:   1. your **CV/resume**; 2. the names and contact details of two previous supervisors or academic/ professional referees; 3. the reasons why the research area(s) you have selected is of interest to you; 4. how your previous skills/knowledge and experience meet the requirements; and 5. an outline of your longer-term career aspirations and detail how this program will help you achieve them.   After preparing the above document please return to the advertisement and complete the following steps to apply:   1. click on the ‘***Apply Now***’ button to either create a Candidate Profile or to login to your current account. Enter your personal details and then click *‘****Next***’ to move to the application form 2. complete the form and upload the **one document** you prepared as requested above in the field labelled ‘***Resume and cover letter***’ 3. complete the ***Preferences*** section by selecting your **2 preferred research areas** from the list below in order of preference in the *Preference 1* and *Preference 2* fields (e.g. ***Minerals 1; Minerals 2***; etc); and 4. upload your **academic results** in the ‘***Requested Information***‘ field.   If you experience difficulties applying online call 1300 984 220 and someone will be able to assist you. Outside business hours please email: [csiro-careers@csiro.au](mailto:csiro-careers@csiro.au).  *Please do not email your application. Applications received via this method may not be considered.* |

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| About CSIRO**:** | At the Commonwealth Scientific and Industrial Research Organisation (CSIRO), we shape the future. We do this by using science and technology to solve real issues. Our solutions make a difference to industry, people and the planet.  We’ve been pushing the edge of what’s possible for almost 90 years. Today we have thousands of talented people working across Australia and internationally. Our people work closely with industry and communities to leave a lasting legacy. Collectively, our innovation and excellence places us in the top ten applied research agencies in the world.  CSIRO. We imagine. We collaborate. We innovate. |

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| **Role Overview:** |
| CSIRO’s Postgraduate Scholarship Program provides enhanced opportunities in science and engineering for outstanding graduates enrolling each year at Australian tertiary institutions as full-time postgraduates for research leading to the award of a PhD. Top-up Scholarships (or in some circumstances full scholarships) are being offered in 46 priority research areas.  At the time of submitting an application for a CSIRO PhD Scholarship, students must have, or expect to gain, first class honours or equivalent in a relevant research area. Students must also expect to receive a Research Training Program (RTP) or university equivalent commencing in that year.  Joint supervision of students by a university and a CSIRO supervisor is required and such joint supervisory arrangements must be consistent with the Higher Degree by Research Regulations of the host university. The primary supervisor may be either the university or CSIRO supervisor.  Recipients of CSIRO Postgraduate Studentships are generally required to be Australian citizens or have permanent residency status. However, in fields in which there is a national skill shortage, studentships may be awarded to overseas candidates provided they are prepared to seek permanent residency as soon as possible within Australian Government policy guidelines. International students must be able to show evidence of admission to an Australian university, as well as evidence that either their living costs or international student tuition fees are being covered by another scholarship or from private funds.  CSIRO Postgraduate Scholarships are being offered in the priority research topic areas at various locations. Details of research areas and contact details are available in the **pages below**. |

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| **Selection Criteria:** |
| ***The criteria on which the applications will be assessed are:***   1. **Quality and relevance of student project:** The primary assessment criterion for a CSIRO Postgraduate Scholarship is the quality and relevance of the project being proposed. The research must be aligned with the advertised priority research area. 2. **Academic calibre of the student:** The quality of the student is also critical to the assessment of a scholarship and candidates must hold (or expect to gain) a relevant first class honours (or equivalent) from a recognised University. 3. **Availability of appropriate university supervision:** The relevance of the University supervisor’s research background and their willingness to supervise the student in collaboration with the CSIRO supervisor should also be made clear.   As Australia’s Innovation Catalyst, CSIRO has strategic actions underpinned by behaviours aligned to excellent science, Inclusion, trust & respect, Health, safety & environment and Deliver on commitments. You will need to demonstrate alignment with these behaviours in your application and throughout the selection process. |

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| **Research Area No.** | **Mineral Resources - Postgraduate Scholarships Research Areas:** |
| **Minerals 1** | **Project Title**  Mineral processing monitoring with next gen *Internet of Things* sensors  **Project Description**  Technology megatrends such as the Internet of Things (IoT) and automation will significantly shape the future of society and alter the way businesses and governments operate. The mining industry is rapidly moving into the age of automation to improve productivity, efficiency and safety. This drive has generated a large and, currently, unmet demand for low-cost, disposable sensors with short response times capable of performing routine environmental sensing, such as measuring water quality, detecting hazardous substances and sensing air quality.  Recent advances in printing technology provide a mechanism for developing low-cost printed electrodes that can be mass produced to realise cheap and portable electrochemical sensors for real-time environmental monitoring. Printed electrochemical sensors have significant advantages over other types of electrodes for continuous on-line monitoring applications. This includes their low fabrication cost, simplicity, compactness and versatility, and the small size of these electrodes enables very small sample volumes to be used for analysis. However, materials currently used to make traditional electrodes are not suitable for fabricating printed electrodes. Therefore, new materials and advances in design are required to deliver reliable and robust printed electrodes for in situ analytical applications.  This project will solve the critical materials problems for these types of sensors by building on the existing and proven IP developed within the project team. It will extend this IP to develop sensing materials and printing techniques that will enable the rapid production of cheap, portable and robust multi-sensor platforms. It will also fabricate prototypes of these platforms.  **Contact:** Deirdre Tribe on (07) 3327 4449 or email [Deirdre.Tribe@csiro.au](mailto:Deidre.Tribe@csiro.au) |
| **Minerals 2** | **Project Title**  Resource characterisation  **Project Description**  Mineral exploration or mineral deposit studies will be undertaken that incorporate advanced (lab-based) and multi-scale characterisation methods.  **Contact:** Deirdre Tribe on (07) 3327 4449 or email [Deirdre.Tribe@csiro.au](mailto:Deidre.Tribe@csiro.au) |
| **Minerals 3** | **Project Title**  Airborne data fusion for automated underground mine characterisation  **Project Description**  Data from UAV (or drone) sensors will be analysed in a 3D data system (VoxelNET) for automated characterisation of an underground void space to better facilitate mine design.  **Contact:** Deirdre Tribe on (07) 3327 4449 or email [Deirdre.Tribe@csiro.au](mailto:Deidre.Tribe@csiro.au) |
| **Minerals 4** | **Project Title**  Energy efficient rock breakage  **Project Description**  The project aims to challenge the energy and environmental footprint of mining operations by investigating alternative solutions for reducing the energy requirement of mechanised breakage systems.  **Contact:** Deirdre Tribe on (07) 3327 4449 or email [Deirdre.Tribe@csiro.au](mailto:Deidre.Tribe@csiro.au) |
| **Minerals 5** | **Project Title**  Investigating the complex interactions of neutrons and gamma-rays in ores to optimise detection of precious metals  **Project Description**  Gamma activation analysis is a key technology under development for rapid analysis of gold and other minerals. A number of fundamental studies will advance the technology for a range of applications.  **Contact:** Deirdre Tribe on (07) 3327 4449 or email [Deirdre.Tribe@csiro.au](mailto:Deidre.Tribe@csiro.au) |